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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/696,269	10/24/2000	Jack A. Mobley	23060	4377

7590 01/23/2004

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EXAMINER

BATAILLE, PIERRE MICHE

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 01/23/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

file

Office Action Summary

Application No.

09/696,269

Applicant(s)

MOBLEY ET AL.

Examiner

Pierre-Michel Bataille

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 7-11 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,12,15,17,20 and 24 is/are rejected.
- 7) ☒ Claim(s) 2,5,6,13,16,18,19 and 21-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office Action is taken in response to Applicant's communication filed December 5, 2003 in response to Office Rejection dated September 5, 2003. Applicant's amendments and/or arguments have been considered with the results that follow.
2. Claims 1-14 were originally pending in the application under examination. Of the original claims, claims 7-11 and 14 have been canceled and claims 15-24 have been added. Therefore claims 1-6, 12-13 and 15-24 are now pending in the application under examination.

Response to Arguments

3. Applicant's arguments with respect to claims 1-6 and 12-24 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 4, 12, 15, 17, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,729,718 (Au) in view of US 5,912,782 (Lee et al).

With respect to claims 1, 15, and 20, Au teaches a system for determining lead time latency as function of head switch, seek, and rotational latencies and utilizing embedded disk drive controller for command queue reordering of a disk drive unit comprising: means for scheduling a plurality of pending access commands from a host computer to access a corresponding plurality of destination tracks on different recording surfaces each having an associated target head different from a presently active head [control unit, Col. 3, Lines 8-14], by determining a corrected seek time for each of the pending access commands which accounts for radial positional offset between the presently active head and the associated target head [Col. 3, Lines 48-66; Col. 4, Lines 36-57]; and scheduling execution of pending access commands in relation to corrected seek time determining in relation with estimated seek length as a radial distance between an initial cylinder and a destination cylinder (Δ_{cylinder}), a radial position offset value between the presently active head and the associated target head (Δ_{head}); and identifying an estimated seek distance comprising a radial distance between an initial track and a destination track to which the associated target head is to be moved (Δ_{sector}) [Col. 4, Lines 16-56]. Au fails to specify the calculated distance being the claimed radial positional offset distance between the presently active head and the associated target head. However, Lee suggests a servo control system and method that enables accurate positioning of an actuator in a storage device where during "track seeking", the heads are moved from a current radial position on the disk to a desired or "target" radial position [Col. 3, Lines 31-36], the disks are rotatably supported by one or more transducers supported in close proximity to the disk surfaces, with an estimator to

Art Unit: 2186

calculate a relative distance, from the difference between a target radial position, and the estimated radial position [Col. 7, Lines 48-54]. Therefore, it would have been obvious to one having ordinary skill in the art to specify calculated distance as radial positional offset distance between the presently active head and the associated target head, as taught by Lee in combination with the system of Au because Lee suggests that heads are moved from a current radial position on the disk to a desired or target radial position during track seeking in preparation for data access with track following being the function of maintaining an active head alignment with the target track while reading or writing data [Col. 1, Lines 30-36].

With respect to claim 12, Au teaches a system for determining lead time latency as function of head switch, seek, and rotational latencies and utilizing embedded disk drive controller for command queue reordering of a disk drive unit comprising: a plurality of heads adjacent to a corresponding plurality of recording surfaces on which a plurality of concentric data tracks are respectively defined so that the tracks on the recording surfaces at each given radius make up a cylinder [Col. 2, Line 66 to Col. 3, Line 7]; and means for scheduling a plurality of pending access commands from a host computer to access a corresponding plurality of destination tracks on different recording surfaces each having an associated target head different from a presently active head [control unit, Col. 3, Lines 8-14], by determining a corrected seek time for each of the pending access commands which accounts for radial positional offset between the presently active head and the associated target head [Col. 3, Lines 48-66; Col. 4, Lines 36-57].

Art Unit: 2186

Au fails to specify the calculated distance being the claimed radial positional offset distance between the presently active head and the associated target head. However, Lee suggests a servo control system and method that enables accurate positioning of an actuator in a storage device where during "track seeking", the heads are moved from a current radial position on the disk to a desired or "target" radial position [Col. 3, Lines 31-36], the disks are rotatably supported by one or more transducers supported in close proximity to the disk surfaces, with an estimator to calculate a relative distance, from the difference between a target radial position, and the estimated radial position [Col. 7, Lines 48-54]. Therefore, it would have been obvious to one having ordinary skill in the art to specify calculated distance as radial positional offset distance between the presently active head and the associated target head, au taught by lee in combination with the system of Au because Lee suggests that heads are moved from a current radial position on the disk to a desired or target radial position during track seeking in preparation for data access with track following being the function of maintaining an active head alignment with the target track while reading or writing data [Col. 1, Lines 30-36].

With respect to claims 2, 4, 17 and 24, Lee suggests storing radial positional offset in a head offset table in memory accessible by control processor and executing a seek to place the target data transducer to the final position adjacent a destination track [Col. 3, Lines 3-9; Col. 6, Lines 1-8].

Allowable Subject Matter

6. Claims 2, 5-6, 13, 16, 18-19, and 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,279,108 (Squires et al) teaching programmable microcontroller architecture for disk drive system.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

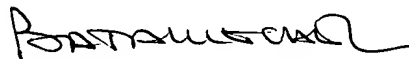
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre-Michel Bataille whose telephone number is (703) 305-0134. The examiner can normally be reached on Tue-Fri (7:30A to 6:00P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew M. Kim can be reached on (703) 305-3821. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



Pierre-Michel Bataille
Primary Examiner
Art Unit 2186

January 21, 2004